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**United States Patent** [19]**Chen et al.**[11] **Patent Number:** **5,783,614**[45] **Date of Patent:** **Jul. 21, 1998**[54] **POLYMERIC-COATED DIELECTRIC PARTICLES AND FORMULATION AND METHOD FOR PREPARING SAME**5,411,656 5/1995 Schubert .  
5,498,674 3/1996 Hou et al. .  
5,573,711 11/1996 Hou et al. .[75] **Inventors:** **Jing Hong Chen**, Bethlehem, Pa.;  
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N.Y.[21] **Appl. No.:** **803,716**[22] **Filed:** **Feb. 21, 1997**[51] **Int. Cl.<sup>6</sup>** ..... **C08K 9/04**[52] **U.S. Cl.** ..... **523/205; 428/407; 524/805**[58] **Field of Search** ..... **523/205; 524/805;**  
**428/407**[56] **References Cited****U.S. PATENT DOCUMENTS**

3,970,627	7/1976	Seymus .....	524/546
4,169,083	9/1979	Vassiliou .....	524/546
4,285,801	8/1981	Chiang .	
4,478,965	10/1984	Concannon .....	523/218
4,914,146	4/1990	Honda .....	524/546
5,360,689	11/1994	Hou et al. .	
5,380,362	1/1995	Schubert .	
5,397,669	3/1995	Rao .....	524/462
5,403,518	4/1995	Schubert .	

**OTHER PUBLICATIONS**

Vincent, et al., J.C.S. Faraday 1, 1980, 76, 665-673, Adsorption of Small, Positive Particles Onto Large, Negative Particles in The Presence of Polymer, Jun. 6, 1979.

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[57] **ABSTRACT**

Properly-coated pigment particles for use in an electrophoretic display include pigment particles having a predetermined density and application of a polymeric coating to the pigment particles, wherein the coating comprises a near fluoropolymer, and wherein the density of the fluoropolymer is substantially the same as the density of the pigment particles. When a polymeric coating is applied having a density that is substantially the same as the density of the pigment particles, even though the particles comprise a distribution of particle sizes, the density of the pigment particles is not significantly altered. In a preferred embodiment, the pigment particle comprises a diarylide yellow pigment, having a density of 1.43 g/ml, coated with a polymer made from the monomer 2,3,4,5,6-Pentafluorostyrene, having a density of 1.41 g/ml.

**19 Claims, 1 Drawing Sheet**